

## CLAIMS

1. A protein crystallizing device comprising:

a protein crystallizing microarray having at least two crystallizing agent holding parts which hold a protein

5 crystallizing agent, and

a plate laminated on said protein crystallizing microarray, said plate having

crystallizing sections corresponding to said crystallizing agent holding parts so that the sections being capable of being filled with a protein-  
10 containing sample, and

recessed parts provided between the crystallizing sections.

2. A protein crystallizing device according to claim 1,

15 wherein said crystallizing agent holding parts are made from gels prepared in respectively different protein crystallization conditions.

3. A protein crystallizing device according to claim 1, wherein said protein crystallizing microarray is a

20 microarray having a plurality of hollow tubular bodies in an array.

4. A protein crystallizing device according to claim 1, further comprising a mechanism which presses said protein crystallizing microarray and said plate into contact with

25 each other.

5. A protein crystallizing device according to claim 1, wherein a sealant is filled in said recessed parts.
6. A protein crystallizing device according to claim 1, wherein a capacity of said crystallizing section is less than 0.5  $\mu$ l.
7. A protein crystallizing device according to claim 1, wherein a capacity of said crystallizing section is 0.5  $\mu$ l or more.
8. A protein crystallizing device according to claim 1, wherein said protein crystallizing microarray has 10 to 1000 of crystallizing agent holding parts.
9. A protein crystallizing device according to claim 1, wherein said plate further has a crystal collection mechanism which collects precipitated crystals in said crystallizing sections.
10. A protein crystallizing device according to claim 1, further comprising a detection mechanism which monitors protein crystallization in said crystallizing sections.
11. A sample filling aid for filling a protein-containing sample into said crystallizing sections of the protein crystallizing device according to any one of claims 1 through 10, comprising:

punched holes having an arrangement corresponding to said crystallizing sections, and a positioning mechanism

which makes the punched holes correspond to said crystallizing sections on said plate.

12. A protein crystallizing device according to any one of claim 1 through claim 10, wherein said plate is formed with the positioning part which matches a position with a sample filling aid according to claim 11.

13. A screening method of protein crystallization conditions using the protein crystallizing device according to claim 12 and the sample filling aid according to claim 11, comprising the steps of:

placing the sample filling aid according to claim 11 on said plate so that said punched holes in the sample filling aid correspond to said crystallizing sections;

adding the protein-containing sample to said punched holes from the top of the sample filling aid so that said crystallizing sections are filled therewith;

taking out said sample filling aid ; and

laminating said plate and said protein crystallizing microarray so that said crystallizing sections and said crystallizing agent holding parts are in contact by corresponding to each other.

14. A protein crystallizing gel having sodium chloride held in a gel-like material comprising a type of monomer selected from a group consisting of acrylamide, 2-

acrylamide-2-methylpropanesulfonic acid, and  
methacryldimethylaminoethylmethyl chloride salt.

15. A protein crystallizing gel having 2-methyl-2,4-  
pentanediol held in a gel-like material containing  
5 dimethylacrylamide.

16. A protein crystallizing agent having sodium/potassium  
phosphate held in a gel-like material containing 2-  
acrylamide-2-methylpropanesulfonic acid.

17. A protein crystallizing gel having ammonium sulfate  
10 held in a gel-like material containing  
methacryldimethylaminoethylmethyl chloride salt.

18. A protein crystallizing gel having sodium malonate  
held in a gel-like material containing acrylamide.

19. A protein crystallizing gel having polyethylene glycol  
15 6000 held in a gel-like material containing polyoxyethylene  
monoacrylate.